

Claims for Preliminary Amendment

1. A method for preparing a beverage or a liquid foodstuff from a capsule containing a product with a substance to be extracted, the capsule having a flexible membrane capable of significant elastic or permanent deformation, comprising the steps of perforating a plurality of holes distributed over the flexible membrane and of injecting water onto the flexible membrane in such a manner that the same deforms in the direction of the product contained inside the capsule and the water penetrates into the capsule via said holes, wherein the size of the holes perforated by the perforating spikes is controlled by the level to which the capsule is filled or by the compactness of the product inside the capsule, so as to influence the hydraulic pressure differential ΔP between opposite sides of the flexible membrane to obtain an automatic adjustment of the compression of the product contained in the capsule.
2. A method according to claim 1, wherein the flexible membrane is perforated by means of an injection head including a perforating surface provided with a plurality of perforating spikes distributed over the perforating surface and, at least one water supply channel, the perforating spikes having a tapered and smooth shape without sharp edges.
3. A method according to claim 1, wherein the flexible membrane of the capsule has a shape which is substantially planar and wherein the perforating surface of the injection head has a shape which is convex, when viewed from outside this perforating surface, urging the flexible membrane against the product inside the capsule or applying a tensile force to the membrane.
4. A method for preparing a beverage or a liquid foodstuff from a capsule containing a product with a substance to be extracted, the capsule comprising a substantially stiff container and a flexible membrane closing an open side of the container, the membrane being capable of significant elastic or permanent deformation, the method including the steps of
 - perforating a plurality of smooth holes distributed over the flexible membrane and
 - injecting water onto the flexible membrane in such a manner that the membrane deforms in the direction of the product contained inside the capsule and in that the water penetrates into the capsule via the smooth holes without them tearing.

5. A method according to claim 4, wherein the flexible membrane is perforated by means of an injection head including a perforating surface provided with a plurality of perforating spikes distributed over the perforating surface and, at least one water supply channel, the perforating spikes having a tapered and smooth shape without sharp edges.
6. A method according to claim 4, wherein the flexible membrane of the capsule has a shape which is substantially planar and wherein the perforating surface of the injection head has a shape which is convex, when viewed from outside this perforating surface, urging the flexible membrane against the product inside the capsule or applying a tensile force to the membrane.
7. A method according to claim 4, wherein the size of the holes perforated by the perforating spikes is controlled, inter alia, by the level to which the capsule is filled or by the compactness of the product inside the capsule, so as to influence the hydraulic pressure differential ΔP between opposite sides of the flexible membrane in such a manner as to obtain an automatic adjustment of compression of the product contained in the capsule.
8. A device for preparing a beverage or a liquid foodstuff from a capsule containing a product with a substance to be extracted, wherein the device includes an injection head comprising a perforating surface having a shape which is substantially curved and convex, when viewed from outside, provided with a plurality of perforating spikes distributed over the perforating surface and at least one water supply channel arranged to supply water onto the perforating surface, the perforating spikes having a smooth tapered shape without sharp edges and an average cone angle less than 60° .
9. A device according to claim 8, wherein the perforating spikes have substantially the shape of cones with substantially straight line generators.
10. A device according to claim 8, including a body or a capsule carrier comprising a bottom wall, an intermediate bottom wall in the form of a filtering wall having a plurality of perforating spikes and outflow orifices, and a lower cavity portion arranged between the filtering wall and the bottom wall wherein the bottom wall comprises an outflow channel surrounded by lips which protrude upwards with respect to a lowest point of the lower cavity portion.

11. A device for preparing a beverage or a liquid foodstuff, comprising a body or a capsule carrier comprising a bottom wall, an intermediate bottom wall in the form of a filtering wall having a plurality of perforating spikes and outflow orifices, and a lower cavity portion arranged between the filtering wall and the bottom wall wherein the bottom wall comprises an outflow channel surrounded by lips which protrude upwards with respect to a lowest point of the lower cavity portion.
12. A device according to claim 10, wherein the upwards protruding lips have openings in the form of slots or of holes enabling liquid to flow out from the capsule carrier at the lowest point.
13. A capsule for the preparation of a beverage or of a liquid foodstuff containing a product with a substance to be extracted, wherein the capsule comprises a shell which is substantially rigid and which comprises a side wall and a bottom wall to form a container in which the product is contained, the shell further comprising an annular flange section extending substantially in a radial plane R, the capsule further comprising a flexible membrane bonded or welded to the annular flange section, the membrane and the shell being made from one or several polymers and the flexible membrane being made from a multiple layer sheet.
14. A capsule according to claim 13, wherein the shell and the membrane comprise polypropylene.
15. A capsule according to claim 13, wherein the flexible membrane is made from a sheet comprised of at least five layers.
16. A capsule according to claim 13, wherein the flexible membrane has a shape, which is substantially planar, before use of the capsule.
17. A capsule according to claim 13, wherein the side wall of the shell of the capsule is substantially conical, whereby the diameter of the cone decreases from the annular flange section in the direction of the bottom wall.